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SUBJECT: DUAL GAMMA VS. TRENTON PROCESSING ANALYSIS

REFERENCE: [ ]

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1. THIS REPORT PRESENTS THE METHODS USED AND RESULTS OF AN ANALYSIS CONCERNING THE DUAL GAMMA VS. TRENTON PROCESSED FILM OF MISSION 1044. CONCLUSIONS BASED ON THE ANALYSIS ARE INCLUDED AT THE END OF THIS REPORT.

2. SIXTEEN TARGETS WERE SELECTED FOR THE ANALYSIS. THESE TARGETS WERE COVERED IN STEREO BY THE FWD AND AFT CAMERAS, AND IN ADDITION, SOME OF THE TARGETS WERE COVERED ON DIFFERENT DAYS OF THE MISSION. THE ORIGINAL NEGATIVES OF THESE TARGETS CONTAINED RELATIVELY SIMILAR CONTRAST AND DENSITY CHARACTERISTICS AS DETERMINED BY SUBJECTIVE ANALYSIS. THE 16 SELECTED TARGETS (32 FILM POSITIVES) WERE CHIPPED FOR COMPARISON. THE TARGETS CHOSEN REPRESENT THE VARIOUS EXPOSURE CONDITIONS ENCOUNTERED DURING THE MISSION PLUS THE COMBINATIONS OF PROCESSING TECHNIQUES.

3. THE FILM CHIPS WERE REFERENCED AND A COMPARISON CHART WAS DEVELOPED. THE CHART WAS ARRANGED TO DETERMINE WHICH FILM CHIPS WERE PREFERRED FOR INTELLIGENCE CONTENT IN THE HIGHLIGHT AREAS, IN THE SHADOW AREAS, AND FOR OVERALL PREFERENCE. THE ANALYSIS WAS ADMINISTERED TO SEVEN PHOTO SCIENCE PERSONNEL AND EIGHT PHOTO INTERPRETERS. THE SELECTIONS BY THESE 15 ANALYSTS WERE SUMMARIZED WITH THE FOLLOWING RESULTS:

## A. HIGHLIGHT AREA

PROCESS	CAMERA	PREFERENCE (PERCENTAGE)
DUAL GAMMA	FWD	68.3
VS.		
TRENTON	AFT	31.7
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DUAL GAMMA	AFT	42.5
VS.		
TRENTON	FWD	57.5

## B. SHADOW AREA

PROCESS	CAMERA	PREFERENCE (PERCENTAGE)
DUAL GAMMA	FWD	63.2
VS.		
TRENTON	AFT	36.8
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DUAL GAMMA	AFT	58.4
VS.		
TRENTON	FWD	41.6

## C. OVERALL

PROCESS	CAMERA	PREFERENCE (PERCENTAGE)
DUAL GAMMA	FWD	67.5
VS.		
TRENTON	AFT	32.5
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DUAL GAMMA	AFT	51.8
VS.		
TRENTON	FWD	48.2

4. CONCLUSIONS: THE DIFFERENCES IN INTELLIGENCE CONTENT IN ALL

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Declassification Review by NGA/DoD

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

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AREAS CONSIDERED IS SUBTLE; HOWEVER, TWO DEVELOPMENTS DID EMERGE FROM THIS ANALYSIS. THEY ARE: (1) THE MATERIAL FROM THE FWD CAMERA IS PREFERRED IN THE MAJORITY OF INSTANCES. (2) THE DUAL GAMMA PRODUCT IS PREFERRED IN THE MAJORITY OF INSTANCES WHEN ONLY PROCESSING IS CONSIDERED. CONTRARY TO WHAT MAY HAVE BEEN EXPECTED, THE MOST SIGNIFICANT DEGREE OF PREFERENCE FOR THE DUAL GAMMA PRODUCT EXISTS IN THE SHADOW AREAS AND LESS NOTICEABLE IMPROVEMENT IS DETECTED IN THE HIGHLIGHT AREAS. IN GENERAL, THE SELECTIONS, BASED ON OVERALL INTELLIGENCE CONTENT INDICATE THAT THE DUAL GAMMA PRODUCT IS PREFERRED OVER THE PRODUCT FROM THE INTERRUPTED TRENTON PROCESSED FILM.

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